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AUTHOR:

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TITLE:

Detection of dislocations on cleavage surfaces of semiconducting crystals

PERIODICAL:

Physica status solidi, v. 2, no. 12, 1962, 1683-1688

TEXT:

The investigations were made using single crystals of Ge and Si obtained by the Czochralski method, or by the zone-floating method. Etch figures obtained by the chemical etching of pairs of cleavage surfaces yield more information than those on single crystals obtained by cutting and polishing. The physical causes of the appearance of the etch-pits at points of penetration are explained. Before the actual etch-pits process, the distorted crystals are subjected to a mechanical and chemical finishing process; the latter gives rise to undesired surface structures directly attributable to it. The use of symmetry conditions of mirror planes obviates disturbances; it also provides unique association between etch figures and imperfections. However, the problem of

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distinguishing between fictitious structures and real defects may be difficult. In the main, the structures described as etch-pits, at points of penetration, appear as 60° dislocations; they have no real effect on the formation of the cleavage structures. It further appears that structures forming along the cleavage crests mark points of penetration of screw dislocations. There are 7 figures.

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